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Rediscovery of *Aconitum novoluridum* (Ranunculaceae) from Sikkim Himalaya, India

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Abstract

Aconitum novoluridum Munz, a rare medicinal plant, has been rediscovered after a gap of more than a century from Tamze valley and upper ridges of Kyongnosla Alpine Sanctuary of Sikkim Himalaya. Detailed description and photographs are provided.

Keywords: *Aconitum novoluridum*, Alpine Slopes, Rediscovery, Sikkim

Introduction

The genus *Aconitum* L. comprising of *c*. 250 species is distributed in the subalpine and alpine regions of the world (Lane, 2004). In India, the genus is represented by 27 species (Rau, 1993), of which 11 species are reported to be occurring in Sikkim. During the course of the floristic study of alpine Medicinal Plants Conservation Area at Tamzey valley near Kyongnosla Alpine Sanctuary in the Eastern Sikkim Himalaya in June 2015, the authors have collected an interesting specimen of *Aconitum* in vegetative stage with poorly developed root system. Later, in August 2016 while undertaking a rapid biodiversity survey as part of Sikkim Biodiversity Conservation and Forest Management Project in Kyongnosla Alpine Sanctuary, plant specimens were collected with flowers along with well-developed root system. On scrutiny of literature (Stapf, 1905; Kadota, 1987; Yang, 1990; Chaudhary & Rao, 1998; Samant *et al*., 1998; Wencai *et al*., 2001) the specimens were identified as *Aconitum novoluridum* Munz. The species was occurring along the east facing slope at an elevation of 4069 m. *Aconitum novoluridum* Munz was first collected by J.D. Hooker from the Tankra Pass and Cho-la in the Eastern Sikkim in 1849 and subsequently described as *Aconitum luridum* Hook.f. & Thomson in 1855. Later, Munz (1945), proposed a new name for this species as *Aconitum novoluridum* since the name *A. luridum* Hook.f. & Thomson was already preoccupied by *A. luridum* Salisb. Lauener (1964), recorded this species from Nepal based on the collection by Stainton (*Stainton* 1152) in 1956, from Tamur valley, Kambachen, Eastern Nepal. There is no representation of this species in any of the Indian herbaria (CAL, BSD, DD and BSHC). The present collection of the species after more than a century from Sikkim reveals the rarity of this species in its natural habitat in India. Presently, the occurrence of this species is confined to Juniper – Rhododendron scrub on alpine slopes and cliffs of Tamzey Medicinal Plant Conservation Area and Kyongnosla Alpine Sanctuary in the Eastern Himalaya of Sikkim, conserved under the Protected Area Network. However, an extensive field survey is required to find out the natural habitats of the species in other parts of Sikkim Himalaya.

Aconitum novoluridum Munz, Gentes Herbarum 6: 472. 1945; Lauener, Notes Roy. Bot. Gard. Edinburgh 26: 9. 1964; Grierson in Grierson & D.G. Long, Fl. Bhutan 1(1): 317. 1984; M.A. Rau in B.D. Sharma *et al*., Fl. India 1: 21. 1993; L.Q. Li & Kadota in Wu *et al*., Fl. China 6: 160. 2001. *A. luridum* Hook.f. & Thomson, Fl. Ind. 1: 55. 1855 & Fl. Brit. India 1: 28. 1872, non Salisb. 1816. **Fig. 1**

Root perennial, descending, elongate, cylindric, ultimately breaking up into separate or anastomosing strands. Stems erect, from a simple or, 2 to many-headed collar covered with brown, dilated bases of the old petioles, unbranched, to 80 cm high, softly hairy to tomentose or sometimes glabrate towards the base, hairs spreading, rarely curved and adpressed. Leaves few from the collar



Fig. 1. *Aconitum novoluridum* Munz: a. Habit; b. Section of root; c. Root breaking up into an anastromosing strands.

on very long (to 30 cm) petioles which are dilated at the base; 3–6, rarely more, from the stem, distant, similar to the basal, but gradually smaller with narrower divisions and the upper with rapidly decreasing petioles, basal and lower blades hairy on both surfaces (especially on veins beneath), orbicular-cordate or reniform in outline, with a narrow or more often wide sinus (1–2 cm deep), 2.5–6.5 cm from the sinus to the tip, 5–7, rarely more, 5-palmati partite to 3/4ths of the length, inner divisions obovate-cuneate, 1.5–3 cm wide, 3-lobed, outermost trapezoidal, 2-lobed, lobes sparingly and acutely inciso-dentate or apiculate-crenate. Inflorescence racemose, to 40 cm long, narrow, rather dense, rarely with a few additional branches from the base, with the same indumentum as the stem, lowest bracts 3-partite, others lanceolate or the uppermost sublinear, exceeding the pedicels; pedicels erect, short, except the lowest (2.5–3.5 cm); bracteoles, if present, small, linear. Sepals lurid, reddish or brownish red to purple, yellowish inside, hairy, upper sepal helmet-shaped, broad, hemi-elliptic in profile in the upper part, 5–7 mm high, gradually descending into an obtuse beak of equal or more than equal length; lateral sepals somewhat obliquely obovate, scarcely clawed, 9–11 × 7–7.5 mm; lower sepals deflexed, oblong, 8–9 mm long, obtuse. Nectaries hammer-shaped, glabrous; claw erect, 4–5 mm long; hood at a right angle to the claw, obliquely oblong, obtuse; lip horizontal or slightly deflexed, shortly 2-lobed. Filaments 6–9 mm long, glabrous, broadly winged up to or beyond middle; wings abruptly contracted. Carpels 3, contiguous and oblique to horizontal in the flower, obliquely oblong, densely hairy, rarely almost glabrous, shortly contracted into the somewhat shorter styles. Follicles erect, contiguous, oblong, subtruncate, 10–12 mm long, glabrescent; seeds triquetrous, oblong, to 3 mm long, blackish brown; angles unequally winged, dorsal face transversely wrinkled, ventral faces smooth.

Flowering & fruiting: August–September.

Habitat: It occurs in Juniper-Rhododendron scrub on alpine slopes and cliffs. The associated species are *Saussurea obvallata* (DC.) Edgew., *Rhodiola himalensis* (D. Don) S.H. Fu, *Bergenia purpurascens* (Hook.f. & Thomson) Engl., *Rhododendron lanatum* Hook.f., *R. anthopogon* D. Don, *R. lepidotum* Wall. ex G. Don, *Juniperus coxii* A.B. Jacks. and *Rheum acuminatum* Hook.f. & Thomson.

Distribution: Bhutan, China (Southeast Xizang), India (Sikkim) and Nepal, 3800–4500 m.

Specimens examined: INDIA, **Sikkim**: Tamze, June 2015, *T.P. Sharma* SD 301 (BSHC); Kyongnosla Alpine Sanctuary, August 2016, *S. Dahal* SD 370 (BSHC).

Note: The present collection of this species has remarkable relevance in preservation of alpine gene bank of Sikkim in the form of Protected Area since its occurrence is witnessed only in Medicinal Plants Conservation Area at Tamze valley and Kyongnosla Alpine Sanctuary, in the Eastern Himalaya of Sikkim. Since the area is far away from the human habitation, no anthropogenic pressure in the habitat has been observed. Natural disturbances including the impact of climate change needs to be studied well, which will be useful for the policy makers and forest managers in framing effective strategies in managing and conserving the species.

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